

**BEFORE THE PUBLIC UTILITIES COMMISSION
OF THE STATE OF CALIFORNIA**



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Order Instituting Rulemaking to Oversee
the Resource Adequacy Program, Consider
Program Refinements, and Establish
Annual Local and Flexible Procurement
Obligations for the 2019 and 2020
Compliance Years.

Rulemaking 17-09-020
(Filed September 28, 2017)

**COMMENTS OF THE CALIFORNIA ENERGY STORAGE ALLIANCE
ON THE PROPOSED DECISION GRANTING MOTION REGARDING QUALIFYING
CAPACITY OF HYBRID RESOURCES WITH MODIFICATIONS**

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In accordance with the Rules of Practice and Procedure of the California Public Utilities Commission (“Commission”), the California Energy Storage Alliance (“CESA”) hereby submits these comments to the *Proposed Decision Granting Motion Regarding Qualifying Capacity of Hybrid Resources With Modifications* (“PD”), filed by Administrative Law Judges (“ALJs”) Debbie Chiv and Peter V. Allen on November 26, 2019.

I. INTRODUCTION.

CESA commends the Commission for its swift response to the motion filled by Engie Storage, Enel X, Tesla Inc., Sunrun Inc., Center for Energy Efficiency and Renewable Technologies, CESA, and Vote Solar (collectively, the “Joint Parties”). In light of the urgent directive in Decision (“D.”) 19-11-016 for the procurement of 3,300 MW of incremental resource adequacy (“RA”) capacity, CESA appreciates the Commission’s willingness to provide certainty to developers and load-serving entities (“LSEs”) on the capacity value of hybrid resources.

Though the Commission’s actions are timely and provide needed market clarity, CESA opposes the proposed interim qualifying capacity (“QC”) methodology. CESA believes that, unfortunately, the proposed solution needlessly undervalues hybrid resources and conflicts with

the framework developed by the California Independent System Operator (“CAISO”) to define, model, and operate hybrid and co-located resources. Instead of the “greater-of” methodology reflected in the PD, CESA believes the additive approach better reflects the capacity contribution of hybrid resources and therefore will not jeopardize grid reliability during the interim period until a more enduring methodology can be adopted. Furthermore, CESA is discouraged by the Commission’s lack of action regarding the establishment of a QC methodology for hybrid resources located behind-the-meter (“BTM”), a set of assets which can participate in CAISO markets and provide RA under CAISO’s non-generating resource (“NGR”) structure.

CESA supports the comments of the Joint Parties that are being separately served and filed, but CESA also puts forward the following recommendations in the comments below due to our aforementioned concerns:

- **The Commission should consider all hybrid configurations and adopt an additive methodology as the interim qualifying capacity methodology:** As proposed, the PD appears to narrowly focus on hybrid resources consisting of a variable energy resource (“VER”) paired with an energy storage asset that is sized in order to provide energy shifting benefits. CESA believes this limited scope fails to capture the nuances and benefits associated with other hybrid configurations; for example, VERs with very large DC to AC ratios, VERs coupled with small additions of storage for generation firming, and hybrid gas-storage designs.
- **The Commission should properly and clearly define “operational restrictions” and distinguish how not all hybrid resources have operational restrictions:** The PD does not provide a clear definition of “operational restrictions”; instead, it merely alludes to “charging restrictions and others” as examples of said restrictions. In order to provide certainty and transparency, the Commission should clarify what qualifies as an operational restriction in a detailed manner.
- **The Commission should recognize the different operational structures available for hybrid resources in CAISO’s markets:** Currently, the PD does not reflect the differences by which hybrid resources can participate as generators or NGRs. Such categories provide developers with options and determine the asset’s metering requirements, market participation models, and forecasting needs.
- **The Commission should consider establishing a QC methodology for BTM hybrid resources:** CESA urges the Commission to provide guidance regarding the capacity

values for hybrid resources behind the utility’s meter; especially in light of recent public safety power shutoff (“PSPS”) events.

II. THE COMMISSION SHOULD CONSIDER ALL HYBRID RESOURCE CONFIGURATIONS AND INSTEAD ADOPT AN ADDITIVE METHODOLOGY AS THE INTERIM QUALIFYING CAPACITY METHODOLOGY.

CESA is concerned that the PD not only fails to make distinction in the different types of hybrid resource configurations, but it also seemingly places an overemphasis on hybrid resources compromised of a VER and a storage resource sized to enable certain types of daily energy shifting by adopting SDG&E’s greater-of approach. With such a framework, the benefits of smaller additions of energy storage, whether in terms of duration or ratio relative to the nameplate capacity of the on-site generation, would be systematically undervalued or even overlooked. For example, assume all things are equal for two types of hybrid resources where a 100-MW solar resource could be paired with either a 10-MW, 4-hour or 20-MW, 4-hour storage resource with the same operational restrictions:

	Resource A	Resource B
Solar Nameplate Capacity	100 MW	100 MW
September Solar ELCC (D.19-06-026)	14%	14%
Solar QC	14 MW	14 MW
Storage QC (Capacity at 4-hour sustained output)	10 MW	20 MW
Greater-of Hybrid Resource QC	14 MW	20 MW
Additive Hybrid Resource QC	24 MW	34 MW

In the very simplified example above, the capacity value of either the solar or storage resource is completely lost using the greater-of approach. Resource A above could provide tremendous value in contributing to the System RA capacity shortfall but would get *zero credit* for being able to shift up to 10 MW to RA periods of need. In effect, by adopting the greater-of

approach, the Commission would be driving specific hybridization outcomes that may not always be the most economical project configuration for a number of reasons. If 10 MW of additional capacity could be delivered by shifting energy via storage pairings, the Commission should recognize that value, especially considering the RA shortfall faced by LSEs from 2021-2023. Similarly, for Resource B, the hybrid resource loses all of the capacity value of the solar resource, which does not consider how the solar output is not entirely going to charge the onsite paired storage facility but rather also being provided to the grid at many times of its production hours. As the PD acknowledges, “this approach may undervalue hybrid resources, and that the appropriate long-term QC value may fall somewhere between this value and SCE’s proposed methodology,” but the current greater-of approach has many flaws in not recognizing the variations in hybrid resource configurations that an additive approach does recognize and reflect. Even if the additive approach may overestimate capacity values of hybrid resources, it is the most appropriate interim methodology at this time given its advantages in recognizing different hybrid resource types and configurations.

Given the growing need for flexible capacity and imbalance products due to variations in renewable generation, CESA also believes that firming applications can provide considerable value to the grid.¹ By not recognizing the benefits of firming applications via an additive approach, the Commission may inappropriately block economic signals to encourage new and existing generating facilities, particularly renewable energy facilities, to create ‘better behaving’ VERs by pairing with energy storage resources to minimize their output’s variance and improve grid reliability. While the greatest need for hybridization of VERs with storage at this time may be for load shifting applications, given the System RA capacity shortfall, the additive approach has the

¹ Consider CAISO’s initiatives regarding the Flexible Ramping Product (“FRP”) and the Energy Imbalance Market (“EIM”)

added advantage of encouraging other types of renewable integration needs, such as for load following applications.

Finally, CESA advises the Commission to consider the benefits and opportunities associated with pairing of dispatchable generators with energy storage resources. Namely, the development of gas-fueled hybrids is not contemplated in the PD. CESA notes that the PD, by focusing solely on resources with “operational restrictions”, declines to establish a QC methodology for resources without said operational restrictions that decide to participate under a single resource ID. CESA believes this omission could be significantly harmful for the overarching energy and environmental goals of the state, as gas-plus-storage hybrids have the potential to minimize fuel consumption, improve operating characteristics, and reduce the pollution impacts of much needed dispatchable capacity. Considering this, the use of an additive approach would appropriately capture the hybrid capacity value of gas-plus-storage resources.

In sum, CESA urges the Commission to adopt an additive approach for the QC of hybrid resources as it would better account for differences in hybrid resource types and configurations and capture the benefits associated with firming instead of solely valuing shifting applications. Furthermore, CESA urges the Commission to consider resource configurations other than VERs paired with storage, since hybridization can provide environmental and operational benefits beyond capacity, especially for resources that do not have operational restrictions related to charging.

III. THE COMMISSION SHOULD PROPERLY AND CLEARLY DEFINE OPERATIONAL RESTRICTIONS AND DISTINGUISH HOW NOT ALL HYBRID RESOURCES HAVE OPERATIONAL RESTRICTIONS.

The PD places a heavy emphasis on the establishment of a QC methodology for hybrid resources with “operational restrictions.” The first mention of such restrictions in the PD comes

after the discussion of the additive approach, proposed originally by Southern California Edison (“SCE”) and advocated for by the Joint Parties, and charging limitations associated with the capture of the investment tax credit (“ITC”).² Specifically, the Commission notes that there is an operational limitation due to the condition that storage resources must charge directly from renewable generators for a specified amount of time in order to receive ITC.³ Nevertheless, nowhere in the PD does the Commission provide an explicit definition of “operational restrictions”; instead, it solely references charging restrictions as the only example of operational restrictions. Without a proper definition, the Commission concludes that in cases "where neither resource component has operational restrictions, we see no reason for the two components to be combined into a hybrid resource for QC purposes [...] Therefore, it is unnecessary to adopt a QC methodology for hybrid resources without operational restrictions."⁴ CESA does not agree with this conclusion and believes that the Commission must clarify what can be considered an operational restriction. As worded, the PD focuses on charging restrictions that would only apply to a subset of hybrid configurations – *i.e.*, specifically to certain solar paired with energy storage assets.⁵ However, the PD proposes an interim methodology for adoption that is overly restrictive in scope and does not capture the variations in hybrid resources operating under a single resource ID.

Even if the Commission determines that charging restrictions are the only operational limitations applicable, CESA considers that further refinement is necessary. For a storage resource to claim the full ITC value, it would need to be charged by renewable energy 100% of the time;

² PD at 6.

³ Ibid.

⁴ PD at 8.

⁵ Note that for certain solar-plus-storage resources with a very high DC-to-AC ratio may not have such restrictions given the volume of clipped energy.

otherwise, the credit is based on the portion of renewable energy it receives, down to 75% charging from the ITC-eligible resource. In that sense, not all hybrid resources that receive ITC benefits are equally constrained, a difference that should be considered when assigning QC values. Hybrid resources that charge for less than 100% of the time from on-site generation would be able to charge from the grid and thus provide capacity beyond the greater of either the effective load carrying capacity (“ELCC”) of the VER or the QC of the storage asset. In other words, for example, the same hybrid resources but with 100% charging versus 80% charging from the onsite ITC-eligible resource likely has different capacity contributions but would be treated equivalently under the greater-of methodology.

Furthermore, the PD presumes that all hybrid resources under a single resource ID has operational restrictions and reasons that hybrid resources with a single resource ID with no operational restriction should seek two resource IDs in order to reflect the additive capacity value of the two resources. However, this assumption does not reflect the realities of how DC-coupled solar-plus-storage resources cannot have two resource IDs, or gas-plus-storage hybrid resources, which operate under a single resource ID, are optimized in the CAISO market as a single resource. Forcing such resources into two resource IDs would unnecessarily complicate market participation and increase costs. Similarly, applying a greater-of methodology to gas-plus-storage hybrids by assuming operational restrictions would inappropriately eliminate the combined capacity value of hybridization of gas and storage resources.

CESA therefore urges the Commission to properly and clearly define operational restrictions and modify the proposed interim QC methodology to reflect that there are differences among charging requirements that would affect the capacity offered to the system by hybrid resources. Given the need for expediency, CESA recommends SCE’s additive approach for the

interim period. As a more durable QC methodology is considered, the Commission should take into account our comments above. In addition, CESA recommends that the Commission modify the PD to ensure that QC methodologies recognize the differences in hybrid resource types that do not have operational restrictions but should not be forced onto single resource ID configurations, which should have the additive methodology applied.

IV. THE COMMISSION SHOULD ACKNOWLEDGE AND ALIGN CAPACITY METHODOLOGIES FOR HYBRID RESOURCES WITH THE HYBRID RESOURCE FRAMEWORK DEVELOPED BY THE CAISO.

Based on the comments made by SDG&E, the PD adopts the following definition for hybrid resources: “a generating resource co-located with a storage project, having a single point of interconnection and represented by a single market resource ID.”⁶ While this definition communicates the nature of a hybrid resource, CESA exhorts the Commission to consider adopting the terminology and definitions currently used by CAISO in its Hybrid Resources Initiative. CESA believes that the utilization of the same terminology across agencies and efforts could streamline the regulatory process, align market participation models, and minimize misunderstandings in the future. Whether a resource is operating under a single resource ID and whether the resource seeks to operate as a VER or NGR has implications to the appropriate capacity counting methodology for hybrid resources. Thus, CESA recommends that the Commission adopt the following definition for hybrid and co-located resources, “A resource type comprised of a mixed-fuel type project, or a combination of multiple different generation technologies that are physically and electronically controlled by a single owner/operator and Scheduling Coordinator behind a single

⁶ PD at 7-8.

point of interconnection (“POI”) that participates in the CAISO markets as a single resource with a single market resource ID.”⁷

In addition to adopting CAISO’s definitions, CESA encourages the Commission to acknowledge the participation frameworks envisioned by the CAISO for hybrid resources. In their Revised Straw Proposal, CAISO staff list out the business drivers and use cases behind the development of hybrid resources. These include enhancing renewable energy production shifting energy production and price arbitrage, providing ancillary services, capturing ITC, improving resource characteristics, capturing resource adequacy value, and leveraging DC coupling benefits.⁸ Recognition of these variety of use cases is necessary to avoid the Commission’s conclusion that, when neither resource component has operational restrictions, there is “no reason for the two components to be combined into a hybrid resource for QC purposes.”⁹

Furthermore, CAISO recognizes that hybrid resources, as defined by CAISO, are able to participate in under different schemes, providing different value to both developers and the grid at large. CAISO considers three different options for hybrid resources to participate in CAISO markets: a scenario where the storage asset is only charged by on-site generation, one where the storage asset is only charged from the grid, and one where the storage asset can change from both on-site generation and the grid.¹⁰ The first option would model the hybrid resource as either a generator or an NGR while the latter two options would necessarily represent the hybrid resource as an NGR.¹¹ The nuances of these categorizations are not present in the PD since it assumes that

⁷ From CAISO, *Hybrid Resource Revised Straw Proposal*, December 2019, at 9. Available at <http://www.caiso.com/InitiativeDocuments/RevisedStrawProposal-HybridResources.pdf>

⁸ Ibid, at 10.

⁹ PD at 8.

¹⁰ From CAISO, *Hybrid Resource Revised Straw Proposal*, December 2019, at 24. Available at <http://www.caiso.com/InitiativeDocuments/RevisedStrawProposal-HybridResources.pdf>

¹¹ Ibid.

hybrid resources would only be deployed for QC purposes and modeled as generators in order to capture ITC benefits. CESA urges the Commission to avoid ascribing the solution by narrowly scoping the opportunity and, instead, consolidate this process by considering the work stakeholders have done in other relevant fora.

V. THE COMMISSION SHOULD CONSIDER ESTABLISHING A QUALIFYING CAPACITY METHODOLOGY FOR BTM HYBRID RESOURCES AS WELL.

CESA, as part of the Joint Parties, has asked the Commission to develop a QC methodology for BTM hybrid resources. Unfortunately, the Commission decided against adopting a capacity counting convention for these resources by considering such an action as premature.¹² CESA urges the Commission to reevaluate this conclusion, particularly in light of the growing need for resiliency given the recent PSPS events across the State, which will drive BTM hybrid resource deployments and create opportunities for such resources to provide multiple values to the grid such as RA capacity if an interim methodology is adopted.

The Commission and some parties may view this action as premature due to a number of other barriers present for BTM hybrid resources in providing RA capacity, such as those involving the CAISO's NGR participation model and the lack of a deliverability methodology for BTM aggregations. However, these barriers should not preclude the Commission from adopting an interim capacity counting methodology for BTM hybrid resources. The existence of other barriers should not prevent the Commission from addressing other barriers that are currently within its ability to address, even in the interim.

CESA would also appreciate if the Commission would recognize that there are no jurisdictional barriers for the implementation of a QC value for BTM hybrids, especially as the

¹² PD at 9.

Joint Parties have requested this methodology be based on the assumption that any export from the resource is delivered to the wholesale market via the CAISO's NGR model, which permits wholesale export, or the Proxy Demand Response (PDR) model, should PDR ever recognize wholesale market exports.

VI. CONCLUSION.

CESA appreciates the opportunity to submit these comments to the PD and looks forward to working with the Commission and stakeholders in this proceeding. In particular, CESA looks forward to developing more permanent capacity counting methodologies for hybrid resource configurations as part of the new RA rulemaking, R.19-11-009.

Respectfully submitted,



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Date: December 20, 2019

Attachment:
Revisions to Findings of Fact, Conclusions of Law, and Orders

PD at 8

Where neither resource component has operational restrictions, we see no reason for the two components to be treated differently than they would otherwise be treated if they were separate resources with separate CAISO resource IDs combined into a hybrid resource for QC purposes. Even if both resources are on a single interconnect, each resource would be able to~~can~~ obtain an individual CAISO resource ID and thus receive individual QC values. Therefore, it is unnecessary to adopt a QC methodology for hybrid resources whether they have a single CAISO resource ID or not so long as they are without operational restrictions that would prevent the delivery of available capacity.

Findings of Fact

3. ~~SDG&E's alternative~~SCE's proposal for hybrid resources with and without operational limitations is an appropriate, , conservative interim approach to determining QC values.
- ~~5. It is premature to apply an interim QC methodology for hybrid resources to BTM resources.~~
5. For purposes of this decision, it is reasonable to define "interim" as applicable to 2020 RA compliance and IRP procurement for deliveries in 2021.

Conclusions of Law

3. For hybrid resources with and without operational limitations, ~~SDG&E's alternative~~SCE's proposal should be adopted as an interim methodology.
4. For purposes of this decision, interim is defined as applicable to 2020 RA compliance and IRP procurement for deliveries in 2021.
- ~~4. The interim QC methodology for hybrid resources should apply only to in front of the meter hybrid resources.~~

ORDER

1. The following qualifying capacity methodology is adopted on an interim basis for ~~in front of the meter~~ hybrid resources:

Where a hybrid resource has charging or other operational restrictions, t
The interim qualifying capacity value for hybrid resources shall be based on the sum of the greater of either: (i) the effective load carrying capacity-based qualifying capacity (QC) of the intermittent resource or the QC of the dispatchable resource, whichever applies, and or (ii) the QC of the co-located storage device.

3. The interim methodology established in this decision is applicable to 2020 RA compliance and IRP procurement for deliveries in 2021.